

AMENDMENTS TO THE CLAIMS

Claims 1-14 (Canceled)

Claim 15 (New) A method of regenerating an activated carbon fiber having mercury adsorbed thereon, comprising applying a voltage between a first electrode made from used activated carbon fiber in which mercury is adsorbed and a second electrode, acting as a counter electrode to the first electrode, so as to elute the mercury from the first electrode in an ionic state, in an electrolyte.

Claim 16 (New) The method of claim 15, wherein said first electrode is used as an anode.

Claim 17 (New) The method of claim 16, wherein the electrolyte is sulfuric acid.

Claim 18 (New) The method of claim 16, wherein the electrolyte includes a material selected from the group consisting of sodium chloride, potassium chloride and sodium carbonate.

Claim 19 (New) The method of claim 15, wherein the electrolyte is sulfuric acid.

Claim 20 (New) The method of claim 15, wherein the electrolyte includes a material selected from the group consisting of sodium chloride, potassium chloride and sodium carbonate.

Claim 21 (New) The method of claim 15, wherein said applying comprises sweeping the voltage in a range from a positive voltage to a negative voltage.

Claim 22 (New) The method of claim 21, wherein the electrolyte is sulfuric acid.

Claim 23 (New) The method of claim 21, wherein the electrolyte includes a material selected from the group consisting of sodium chloride, potassium chloride and sodium carbonate.

Claim 24 (New) The method of claim 15, wherein the mercury is desorbed from the used activated carbon fiber while one of oxygen and hydrogen is generated by said applying.

Claim 25 (New) The method of claim 15, wherein said applying comprises the first electrode being made from used activated carbon fiber that has been used in a smoke extraction treatment apparatus.

Claim 26 (New) The method of claim 15, wherein the mercury desorbed from the used activated carbon fiber is precipitated by an inverse reaction on said second electrode so as to recover the mercury.

Claim 27 (New) An apparatus for regenerating an activated carbon fiber having mercury adsorbed thereon, comprising:

an electrolytic cell having an electrolyte therein;

an electrode unit comprising a first electrode made from used activated carbon fiber in which mercury is adsorbed and a second electrode forming a counter electrode to said first electrode, said first electrode and said second electrode being disposed in the electrolyte; and

a power source operable to supply a voltage to be applied between said first electrode and said second electrode.

Claim 28 (New) The apparatus of claim 27, wherein the used activated carbon fiber having the adsorbed mercury has been used in an exhaust gas treatment apparatus.

Claim 29 (New) The apparatus of claim 27, wherein said second electrode is structured and arranged such that a precipitation layer made of mercury is formed thereon from mercury desorbed from the used activated carbon fiber, thereby enabling recovery of the mercury.

Claim 30 (New) The apparatus of claim 27, wherein said first electrode is a cathode.